

IN THE CLAIMS:

1. – 7. (CANCELLED)

8. (PREVIOUSLY PRESENTED) A bearing assembly comprising:

a first bearing having an inner race and an outer race;

a first bearing cup disposed at least partially around the first bearing and secured to the outer race thereof, the first bearing cup having at least one tang adapted to interface with a portion of the apparatus to prevent the first bearing cup from rotating while allowing the first bearing cup with the first bearing to move in an axial direction;

a second bearing having an inner and an outer race;

a second bearing cup disposed at least partially around the second bearing and secured to the outer race thereof, the second bearing cup engaged with the first bearing cup such that a predetermined rotational movement is permitted between the second bearing cup and the first bearing cup; and

a generally flat spring in contact with both said first bearing cup and said second bearing cup to form said generally flat spring into a circumferential wave shape.

9. (CANCELLED)

10. (PREVIOUSLY PRESENTED) The bearing assembly of claim 8, wherein the bearing cups each include at least one tooth and at least one slot, the tooth of the first bearing cup disposed within the slot of the second bearing cup and the tooth of the second bearing cup disposed within the slot of the first bearing cup.

11. (PREVIOUSLY PRESENTED) The bearing assembly of claim 10, wherein the slots are larger than the teeth such that the teeth may rotate therein to provide the predetermined rotational movement.

12. (PREVIOUSLY PRESENTED) The bearing assembly of claim 11, wherein the bearing cups are generally ring shaped and each includes a shoulder extending radially inward from an inner surface thereof, the shoulders abutting the outer races to align the bearing cups to the respective bearings.

13. (CANCELLED)

14. (PREVIOUSLY PRESENTED) The bearing assembly of claim 8, wherein the bearing cups each include a plurality of teeth disposed within a plurality of slots to form an interlocking mesh, and wherein the generally planar spring is protected between the shoulders and the interlocking teeth of the bearing cups.

15. (PREVIOUSLY PRESENTED) The bearing assembly of claim 14, further comprising a shim disposed between the inner races of the bearings to space the bearings apart from one another.

16. (PREVIOUSLY PRESENTED) The bearing assembly of 8, wherein the first and second bearing cups are secured to the respective first and second outer race through an interference fit.

17-25. (CANCELLED)

26. (PREVIOUSLY PRESENTED) A bearing assembly comprising:

- a first inner race defined about an axis;
- a first outer race defined about the axis;
- a plurality of first rolling elements disposed between said first inner and outer races;
- a first bearing cup mounted at least partially about the first outer race and having a tang projecting therefrom adapted to interface with a structure in which said bearing assembly is located to prevent the first bearing cup from rotating while allowing the first bearing cup to move in an axial direction along a longitudinal axis of the bearing assembly;
- a second inner race defined about the axis;
- a second outer race defined about the axis;
- a plurality of second rolling elements disposed between the second inner race and outer secondary races,
- a second bearing cup mounted at least partially about the second outer race and engaged with the first bearing cup plurality of slots such that a predetermined rotational movement is permitted between the second bearing cup and the first bearing cup; and
- a generally flat spring in contact with both said first bearing cup and said second bearing cup to form said generally flat spring into a circumferential wave shape to axially preload said first bearing cup relative said second bearing cup.

27. (CANCELLED)

28. (PREVIOUSLY PRESENTED) The bearing assembly of claim 26, wherein the first bearing cup includes a multiple of slots and said second bearing cup includes a multiple of teeth, each of the plurality of slots are larger than each of the plurality of teeth to enable the teeth to move within the slots to provide the predetermined rotational movement.

29-31. (CANCELLED)

32. (PREVIOUSLY PRESENTED) The bearing assembly of claim 26, wherein the first and secondary rolling elements comprise balls.

33. (PREVIOUSLY PRESENTED) A bearing assembly comprising:

a first inner race;

a first outer race;

a first plurality of rolling elements disposed between the first inner and outer races;

a first bearing cup mounted at least partially about the first outer race, the first bearing cup including a plurality of first teeth;

a second inner race;

a second outer race;

a second plurality of rolling elements disposed between the second inner and outer races;

a second bearing cup mounted at least partially about the second outer race, the second bearing cup including a plurality of second teeth, said plurality of first teeth engaged with said plurality of second teeth; and

a generally flat spring in contact with both said first bearing cup and said second bearing cup to form said generally flat spring into a circumferential wave shape to axially preload said first bearing cup relative said second bearing cup.

34. (PREVIOUSLY PRESENTED) The bearing assembly of claim 33, wherein said generally planar spring is disposed axially between said first outer race and said second outer race for biasing said rolling elements against said first and second inner races, and thus providing a pre-load force to said rolling elements.

35. (PREVIOUSLY PRESENTED) The bearing assembly of claim 33, wherein said first bearing cup includes a plurality of circumferentially arranged slots around a perimeter portion thereof for engaging with the plurality of second teeth of said second bearing cup, said second bearing cup includes a plurality of circumferentially arranged slots around a perimeter portion thereof for engaging with the plurality of first teeth of said first bearing cup.

36-39. (CANCELLED)

40. (CURRENTLY AMENDED) The bearing assembly of claim 26, wherein said generally planar ~~biasing flat~~ spring includes raised areas on opposite sides of a planar surface, the raised areas distributed at circumferential locations such that the raised areas are circumferentially offset.

41-42. (CANCELLED)

43. (PREVIOUSLY PRESENTED) The bearing assembly as recited in claim 8, wherein said circumferential wave shape generates an axial preload to both said first bearing cup and said second bearing cup.

44. (PREVIOUSLY PRESENTED) The bearing assembly as recited in claim 43, wherein said axial preload to both said first bearing cup and said second bearing cup axially preloads said first bearing relative to said second bearing.

45. (PREVIOUSLY PRESENTED) The bearing assembly as recited in claim 8, wherein said axial preload remains generally constant irrespective of movement of said first bearing and said second bearing.

46. (PREVIOUSLY PRESENTED) The bearing assembly as recited in claim 45, wherein said first bearing cup and said second bearing cup carry radial loads and permit axial shaft travel of a shaft supported by said first bearing and said second bearing.

47. (PREVIOUSLY PRESENTED) The bearing assembly as recited in claim 26, wherein said first bearing cup and said second bearing cup carry radial loads and permit axial shaft travel of said shaft.

48. (PREVIOUSLY PRESENTED) The bearing assembly as recited in claim 47, wherein said axial preload remains generally constant irrespective of movement of said first bearing and said second bearing.

49. (PREVIOUSLY PRESENTED) The bearing assembly as recited in claim 26, wherein said first bearing cup, said second bearing cup and said generally flat spring do not limit axial shaft travel of said shaft.

50. (PREVIOUSLY PRESENTED) The bearing assembly as recited in claim 33, wherein said axially preload of said first bearing cup relative said second bearing cup axially preloads said first bearing and said second bearing

51. (PREVIOUSLY PRESENTED) The bearing assembly as recited in claim 33, wherein said axially preload of said first bearing cup relative said second bearing cup axially preloads said first outer race relative to said second outer race.

52. (NEW) The bearing assembly of claim 33, wherein said generally flat spring includes raised areas on opposite sides of a planar surface, the raised areas distributed at circumferential locations such that the raised areas are circumferentially offset.

53. (NEW) The bearing assembly of claim 52, wherein each said raised areas extend from the planar surface to define a thickness greater than said planar surface at a radial location defined in part by said planar surface.

54. (NEW) The bearing assembly of claim 1, wherein said generally flat spring includes raised areas on opposite sides of a planar surface, the raised areas distributed at circumferential locations such that the raised areas are circumferentially offset.

55. (NEW) The bearing assembly of claim 54, wherein each said raised areas extend from the planar surface to define a thickness greater than said planar surface at a radial location defined in part by said planar surface.

56. (NEW) The bearing assembly of claim 40, wherein each said raised areas extend from the planar surface to define a thickness greater than said planar surface at a radial location defined in part by said planar surface.